PB82-190190

Draft Environmental Impact Statement City of Los Angeles Wastewater Facilities Plan. Summary of Issues

Los Angeles City Dept. of Public Works, CA

Prepared for

Environmental Protection Agency
San Francisco, CA

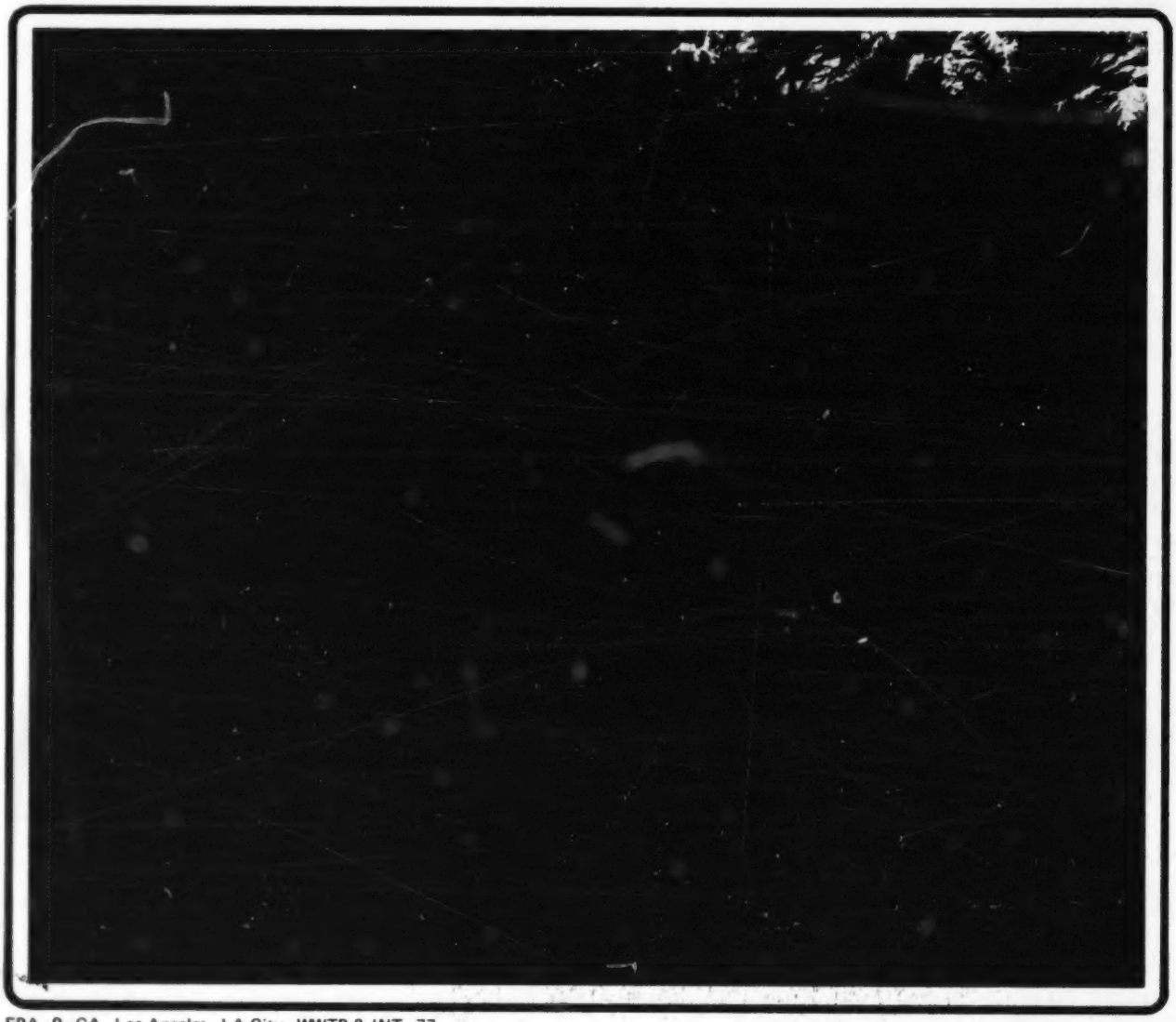
Sep 77

U.S. Department of Commerce
National Technical Information Service
NTIS.

PB82-190190

DRAFT

ENVIRONMENTAL IMPACT STATEMENT CITY OF LOS ANGELES WASTEWATER FACILITIES PLAN



EPA–9–CA–Los Angeles–LA City–WWTP & INT–77

Summary of Issues

September 1977

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SPRINGFIELD, VA 22161

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. Recipient's Accession No. PB82 190190
4. Title and Subtitle: Draft Environmental Impact Statement City of Los Angeles Wastewater Facilities Plan Summary of Issues			5. Report Date: Sept. 1977
			6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: City of Los Angeles Dept. of Public Works, 200 North Spring St., Los Angeles, CA 90012			10. Project/Task/Work Unit No.
			11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address: U.S. Environmental Protection Agency, Region IX, San Francisco, CA 94111			13. Type of Report & Period Covered
			14.

15. Supplementary Notes

Also assisting was the CAlifornia Water Resources Control Board and Henningson, Durham & Richardson, INC.

16. Abstract (Limit: 200 words)

The City presently operates one large treatment facility-the Hyperion treatment Plant. The treated effluent is discharged into Santa Monica Bay through a 5 - mile outfall pipe. The solids removed in treatment (sludge) are also discharged into Santa Monica Bay through a 7-mile outfall pipe. Since the solids removed in treatment (sludge) are also discharged, there is a controversy as to whether the current treatment system results in a net improvement to marine water quality.

The EIS examines in considerable detail the existing impacts of these discharges on the marine environment. Sewage constituents of Hyperion Treatment Plant origin clearly occur in water, sediments, and animals of Santa Monica Bay. The EIS also reviews the adverse impacts of increased sewage capacity which will occur because of the project, the location of regional treatment facilities and interceptor sewers; and the potential for large-scale reclamation, both at the Hyperion facility and at a proposed La Cienega area facility.

17. Document Analysis a. Descriptors

Ocean Disposal
Sludge Disposal
Sewage Disposal
Regional Planning
Marine Pollution

b. Identifiers/Open-Ended Terms

Los Angeles, California
Environmental Impact Statement
Santa Monica Bay
Secondary Effects
Water Reuse

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
	20. Security Class (This Page)	22. Price

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
100 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94111

SEP 01 1977

To All Interested Agencies, Public Groups, and Concerned Individuals:

We submit for your review and comment the Draft Environmental Impact Statement/Environmental Impact Report for the City of Los Angeles Wastewater Treatment Facilities Plan. This statement has been prepared in compliance with the National Environmental Policy Act of 1969 (P.L. 91-190), and implementing regulations promulgated by the Council on Environmental Quality and the Environmental Protection Agency. It has also been prepared in compliance with the California Environmental Quality Act and its implementing regulations.

The EIS/EIR summary and full report present the environmental, economic and social effects of wastewater facility planning decisions which will affect over 3.4 million persons living in the City of Los Angeles and contract cities, and involve capital costs in excess of 300 million dollars over the next five years.

The main purpose of this document is to publicize the long range environmental and social effects of wastewater facility alternatives so that citizens and governmental agencies can comment and express their concerns and preferences. Public comments are expected to play a key role in (1) selection of long-range alternatives for the service area, including size and location of collection and treatment facilities, and (2) implementation of measures needed to reduce adverse environmental effects.

The Environmental Protection Agency, Region IX and the City of Los Angeles, Bureau of Engineering will hold hearings on the Draft EIS, approximately 30 days following the distribution of the EIS. The exact place and date will be announced. All interested parties are invited to express their views at the hearings. Persons wishing to make comments may submit them in writing and/or appear at the hearings. Oral statements will be considered, but, for the record, all important testimony should be submitted to:

Environmental Protection Agency, Region IX
Attn: Fred Krieger, W-1
100 California Street
San Francisco CA 94111

Enough copies of the written material should be provided so that other interested parties at the hearing may receive a copy. Oral statements should summarize extensive written material since it is necessary for all interested parties to be heard. After the public hearings the Draft EIS/EIR will be revised in light of the comments to form the Final EIS/EIR.

If you do not comment at the public hearings, you may send written comments to EPA at the address given above within thirty days following the hearings.

The following documents constitute the EIS:

Mini-Summary
General Summary
Main text (3 volumes)
Addendum 1. Reclamation Options
Addendum 2. Environmental Analysis of Reclamation
Addendum 3. Interim Sludge Processing and Disposal System
Appendices

Copies of these documents can be obtained by written or by telephone requests at the address given above or at:

City of Los Angeles, Bureau of Engineering
City Hall East-Room 650
200 North Main Street
Los Angeles CA 90012 Attn: Fred Hoeptner
(213)485-3089

Additionally the Draft EIS and supplemental information may be reviewed at the above addresses or at the public libraries within the service area of the City of Los Angeles.

Please bring this notice to the attention of all persons who would be interested in this matter.

Sincerely,

Sheila M. Prindiville

for Paul De Falco, Jr.
Regional Administrator

LEGISLATIVE MANDATES FOR WASTEWATER FACILITIES

The Charter of the City of Los Angeles empowers the City Council to provide wastewater treatment in order to promote the peace, health, safety, and welfare of the public. In accordance with this authority, the City Council set forth its policy on water pollution control in a resolution dated 6 December 1956:

> . . . it is the policy of the City of Los Angeles to provide and maintain facilities for the treatment and disposal of sewage which shall be, at all times, adequate in capacity and adequate for the protection of the public health and the public interests in this and neighboring communities, including the maintenance of the beaches and coastal waters in an attractive condition suitable for recreation and other beneficial uses equal to or better than the conditions specified by the state agencies having control over the subject water (Council File 76940).

The City Council also endorsed the concept of a water reclamation program for the City (Resolution adopted 16 April 1969, Council File 143-207).

The federal act which governs planning for wastewater facilities construction grant monies is Public Law 92-500, the Federal Water Pollution Control Act Amendments of 1972. The objective of PL 92-500 is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." Two national goals are established by the act as follows:

- Elimination of discharges of pollutants into navigable waters by 1985.
- Wherever attainable, achievement of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water by 1 July 1983.

The federal act requires that municipal sewage discharges attain the level of treatment known as secondary by 1 July 1977. Included within this requirement is a prohibition on ocean discharge of sludge, which consists of the solids removed in wastewater treatment.

To assist municipalities in achieving these requirements, the act established a grant program. The federal government pays 75 percent of the cost of the treatment facilities. In California the state pays an additional 12.5 percent. The remaining 12.5 percent of the construction costs and all of the operation costs are paid from local sources.

The state program is administered under the Porter-Cologne Water Quality Control Act. Pollutant limits for discharges to marine waters are specified in the State Water Resources Control Board's Ocean Plan.

The Clean Air Act of 1967 (PL 90-148) and the Clean Air Act Amendments of 1970 (PL 91-604) also strongly influence wastewater facilities planning since they require that no federal action result in degradation of ambient air quality.

EXISTING FACILITIES

The City presently operates one large treatment facility—the Hyperion Treatment Plant, adjacent to the Los Angeles International Airport. This facility provides primary treatment (removal of about half of the solids) for the full flow of 360 million gallons per day (mgd). Secondary treatment (including removal of up to approximately 85 percent of the solids) is provided for 100 mgd of the total flow. The treated effluent is discharged into Santa Monica Bay through a 5-mile outfall pipe. The solids removed in treatment (sludge) are also discharged into Santa Monica Bay through a 7-mile outfall pipe.

Approximately 20 mgd of wastewater will soon be treated at the new Los Angeles-Glendale Water Reclamation Plant. The Terminal Island facility, under renovation to upgrade effluent quality, will treat approximately 40 mgd, and is covered in separate environmental evaluations.

These existing facilities plus proposed facilities are shown in Figure S-1.

MAJOR ISSUES AND PROBLEMS

MARINE ENVIRONMENT

As noted in the previous section, the City discharges wastes through two pipes to the marine environment. Since the solids removed in treatment (sludge) are also discharged, there is a controversy as to whether the current treatment system results in a net improvement to marine water quality. For example, floatables and grit are removed by the present treatment system but metals may be made more available for uptake. The conversion of some solids to gases and water during treatment likely lessens the potential for the accumulation of a blanket of organic material on the ocean bottom. However, the problem constituents—metals, chlorinated hydrocarbons, and other chemicals—are discharged with the present treatment system in the same quantities as they would be with no treatment. Federal law and regulations require that a minimum of secondary treatment be attained, that the sludge discharge cease, and that water quality be protected. This last requirement means that public health and the propagation of marine life be protected even if higher levels of treatment are required.

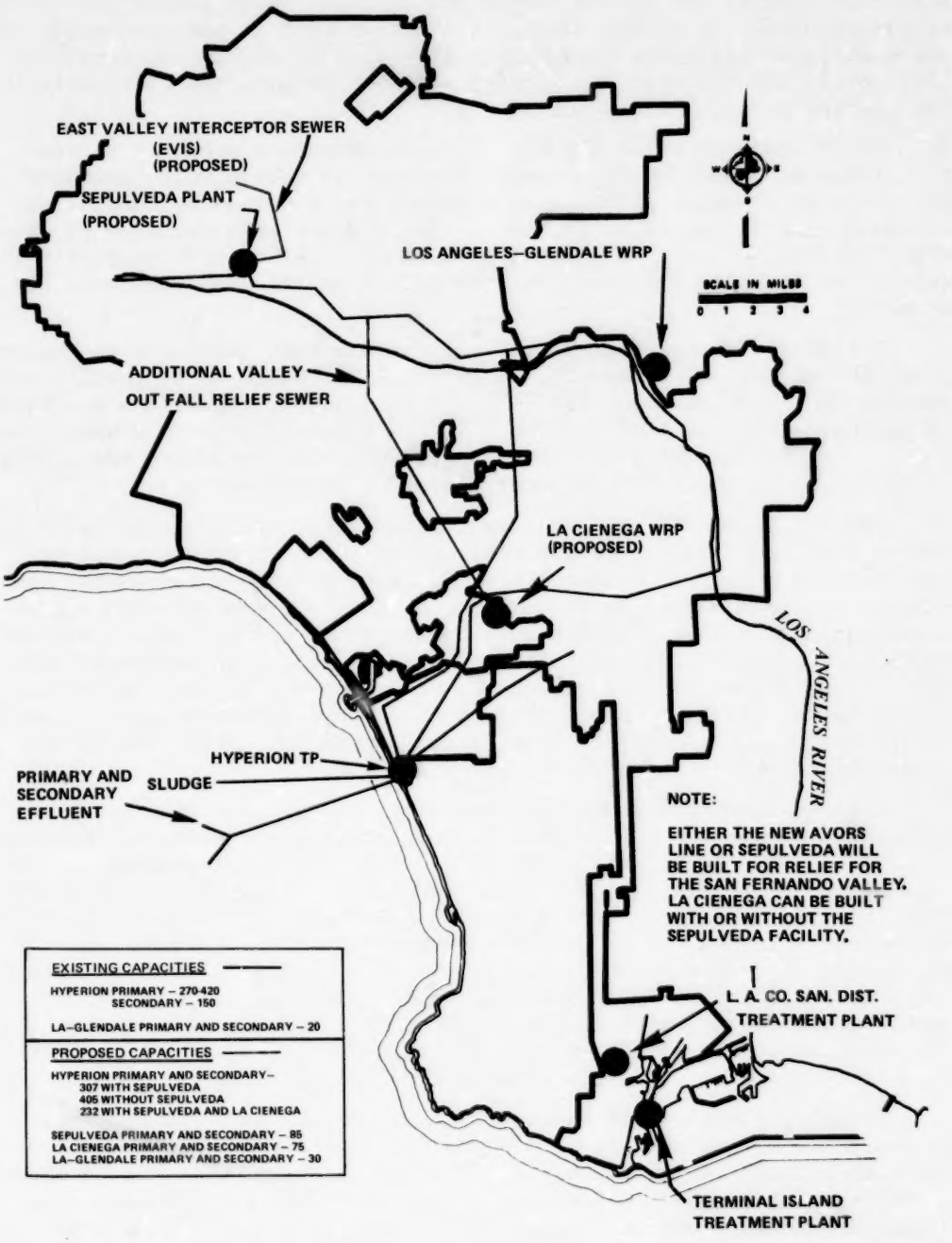

Figure S-1. City of Los Angeles existing and proposed wastewater facilities.

The state law requires that the effluent limitations contained within the Ocean Plan be met by the City's discharges. These limitations effectively prohibit the sludge discharge and require that the wastewater receive at least secondary treatment. Even with secondary treatment the limitations for chromium and mercury will not be met, and the limitations for cyanide and nickel may not be met.

On 14 December 1972, the City Council adopted a schedule to cease the sludge discharge by 30 December 1976 and to obtain full secondary treatment by 1 August 1978. This schedule was required by conditions included in past grants to the City. These dates were extended by the NPDES discharge permit to 1 April 1978, and 1 October 1979 respectively. Because of the time required for construction these deadlines will not be met.

Originally the sludge removal project had been scheduled to proceed prior to completion of the EIS. However, in December 1976, the City requested that EPA reexamine the need for terminating the sludge discharge. At approximately the same time, a suit was filed seeking to prohibit EPA and the state from enforcing their requirements to terminate the sludge discharge and require the secondary level of treatment.

The EIS examines in considerable detail the existing impacts of these ~~City's~~ discharges on the marine environment. Sewage constituents of Hyperion Treatment Plant origin clearly occur in water, sediments, and animals of Santa Monica Bay. Figures S-2 and S-3 show examples of the distribution of sewage constituents in the water and sediments near the Hyperion Treatment Plant outfalls. The accumulation of sediments with high oxygen demand has reduced the amount of oxygen in the sediments near the outfalls. It is probable that some of these sediments are transported to the deep ocean basins off Soutern California and contribute to the anaerobic character of their sediments as well.

Animals have been shown to concentrate sewage constituents from the sediments. Figure S-4 shows the best of several correlations examined between tissue concentrations of toxicants in benthic organisms and the location of HTP outfalls. The concentration in organisms of toxicants from the water was demonstrated by the observation of accumulated chlorinated hydrocarbons in mussels suspended near HTP outfalls. Probably as a result of changes in sediment and water quality, the species diversity of benthic organisms near the outfalls has decreased (see Figure S-5); and sampling trawls conducted in Santa Monica Bay from 1958 through 1963 showed that the mean number of species and the median number of fish per trawl were apparently lower near the Los Angeles City outfalls than in control areas.

Finally, there are diseases of marine animals that are spatially associated with the outfalls and evidently attributable to sewage constituents. The best correlation is fin erosion disease of Dover sole. The distribution of fin erosion disease is shown in Figure S-6. and a photograph of a diseased fish is shown in Figure S-7. There is some evidence that lip papilloma in fish and brown spot disease in crabs are also associated with the outfalls. Laboratory studies have shown that some of the sewage constituents can have direct toxic effects on marine organisms at the concentrations at which they are discharged, and a few constituents remain toxic after initial dilution. Further dilution, of course, lessens the potential for direct toxic effects.

198P-237

Figure S-2.

Total coliform bacteria counts (in MPN/ml) measured at a depth of 140 feet in the vicinity of the HTP outfalls on July 22, 1974, are shown. There were no coliform measurable on the surface on this date. During the summer, coliform bacteria of HTP origin generally remain in deeper water.

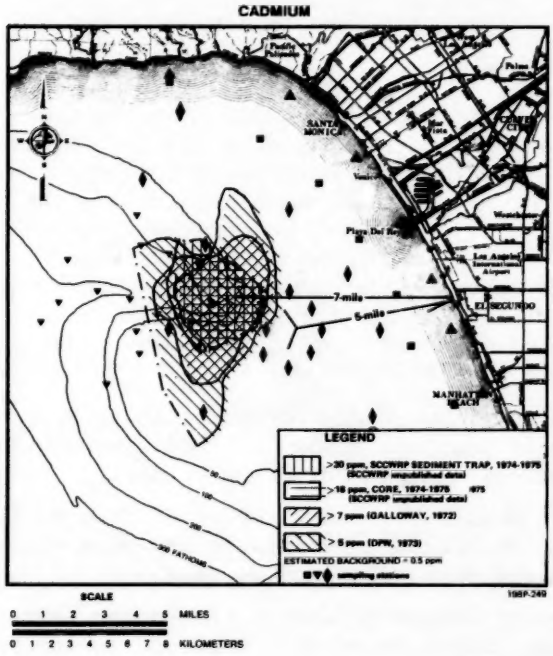

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Figure S-3.

This figure shows computer-drawn isopleths of cadmium concentrations found in sediments in the vicinity of HTP outfalls. Computer extrapolation was limited to a distance of 2 km from the nearest sampling point, accounting for the broken line on the west edge of the isopleth.

Figure S-4. Concentrations of copper in mg/dry kg in the tissues of benthic organisms collected near the HTP outfalls in 1972 (data from DPW, 1973).

In addition to the distribution of contaminated and diseased organisms, and of pollutants in water and sediments spatially associated with outfalls of the Hyperion Treatment Plant (and other sewage treatment plants), there have been a number of degradative changes in the marine biology off Southern California that have occurred concomitantly with industrialization and urbanization. Some of these can be attributed to specific causal agents (such as heavy metals, chlorinated hydrocarbons, and compounds with high oxygen demand) and for 60 percent of the causal agents that have been identified and measured, municipal sewage treatment plant outfalls are the major source (see Figure MS-8)

One historic environmental change apparently attributable to some combination of these constituents is the decline of kelp beds, particularly those associated with the nearshore discharges off Palos Verdes.

Deformities, asymmetry, and tumors have been observed in fish of the Southern California Bight and some authorities feel there may be a causal link between man-caused pollution and these diseases as well.

The introduction of nutrients by sewage treatment plants may have effects ranging from increasing the incidence of diatom blooms (which can be followed by red tides if nutrient distribution changes) to increasing the overall productivity of Santa Monica Bay and the Southern California Bight, but there are few data that support either of these possibilities.

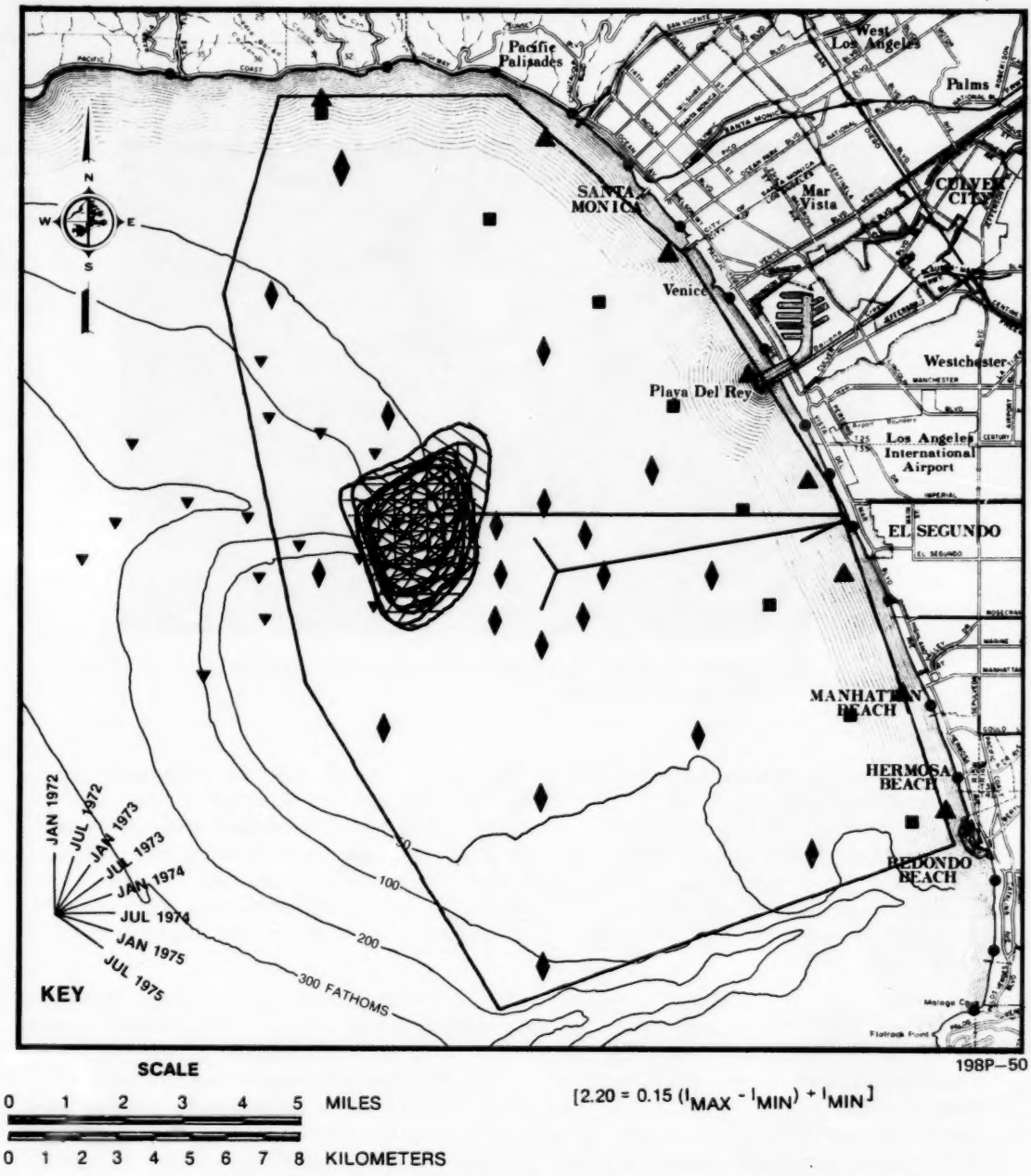

Figure S-5. Areas where the Margalef index of diversity was less than 2.20 for the period January 1972 through July 1975. The contours are computer-drawn (unpublished data from DPW). Margalef diversity is an expression of the ratio between the number of species and the number of individuals. A low diversity index value indicates a low number of species in relation to the number of individuals. A low diversity index value has classically been associated with low ecological quality although such a generalization does not apply to all ecological communities. Generally, the higher the diversity index value, the less disturbed the community is.

Figure S-7. Fin erosion afflicts Dover sole and white croaker (shown above).

There is concern that many of the toxic constituents released from the Los Angeles City outfalls in concentrations too dilute to cause direct toxic effects to marine organisms may be bioaccumulated in individual organisms, be concentrated throughout the food web to the point that they have sublethal toxic effects resulting in altered species composition and diversity, and ultimately end up interfering with reproductive success of marine birds and mammals, or end up in human food supplies.

The best documented adverse effects of bioaccumulated toxic constituents on top carnivores are the reproductive failure of California brown pelicans attributable to discharges of DDT, and premature births of California sea lions attributable to discharges of chlorinated hydrocarbons and heavy metals. As detailed in the EIS, chlorinated hydrocarbons and heavy metals of the same type (but not necessarily the same chemical form) from Los Angeles City outfalls appear in the tissues of sport and commercial fish in Santa Monica Bay, as well as in marine mammals and birds. Although it usually is not possible to trace a contaminant to a specific outfall, it can be inferred that some percentage of the uptake is attributable to the Los Angeles City outfalls.

Potential impacts on human health are of particular concern. PCBs, for example, are suspected to cause cancer in man, in addition to being implicated in adverse impacts on marine life. The Report of the University Task Force to Evaluate Water Quality Effects of Hyperion Sludge Discharge, May 1977, made the following conclusion:

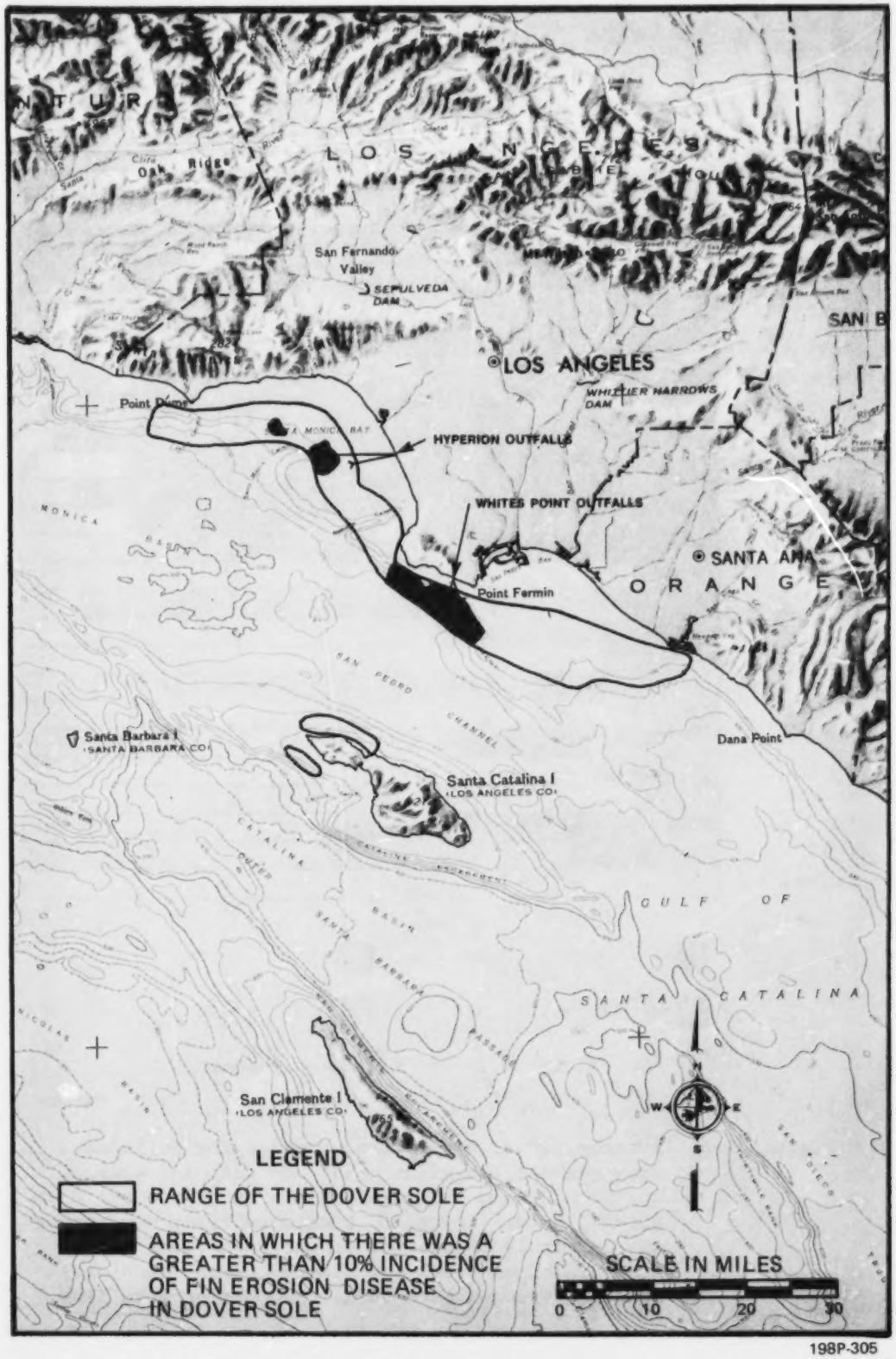

Figure S-6. The occurrence of fin erosion disease in Dover sole collected by trawl in August through October 1971 (from SCCWRP, 1973). Depths are in fathoms.

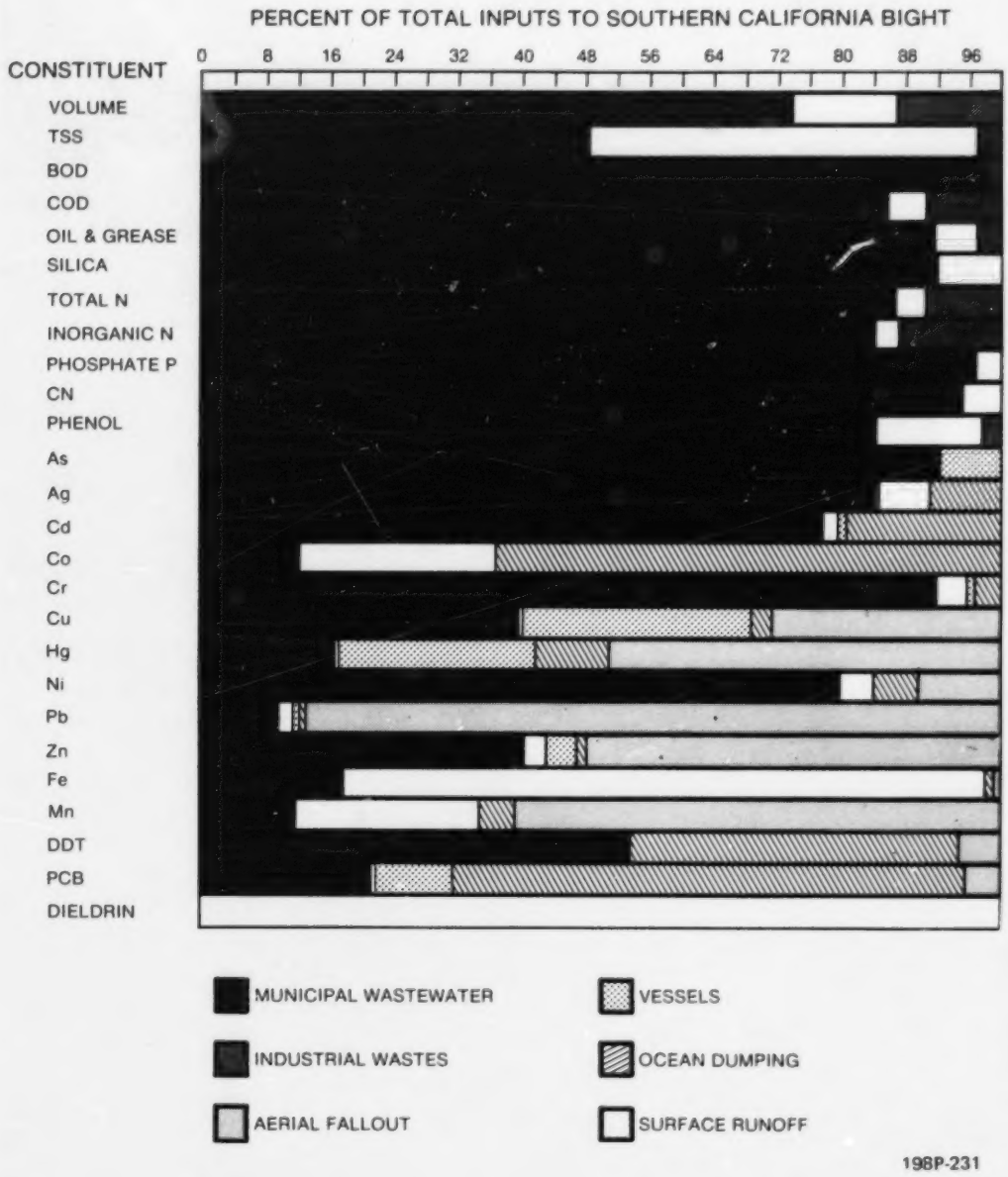

Figure S-8. Average annual mass emission rates for pollutants from each of the major point and nonpoint sources to the Southern California Bight in 1970 (data from SCCWRP, 1973). Hyperion Treatment Plant discharges approximately 34 percent of the wastewater volume from municipal treatment plants. Mass emissions, however, are not necessarily proportional to flow.

It is obvious that the environment around the 7-mile line is unhealthy for many, but not all, species. We do not recommend eating fish caught in the vicinity of the Hyperion outfalls, because of the accumulations of halogenated hydrocarbons.

The construction projects in the Facilities Plan will significantly decrease the discharge of pollutants. Taking cadmium as an example, terminating the sludge discharge will prevent 7 metric tons per year from entering the Bay (1975 data). Providing full secondary treatment will eliminate an additional 6 tons per year by the year 2000.

ADDITIONAL CAPACITY AND SECONDARY IMPACTS

Limited capacity in such utilities as sewage treatment can restrict urban development. If such services are adequate, continued growth may occur and produce a number of secondary impacts on environmental quality, particularly land use, air quality, water quality, and demands for energy. Growth also affects demands for community services such as police and fire protection, transportation, schools, and recreation facilities.

Of major importance are the effects on air quality. Table S-1 summarizes the increased emissions between a no-growth projection and the growth expected to occur if the wastewater projects are built.

It is projected that in 1990, the 8 pphm air quality standards would be violated on 126 days out of the year if there were no growth. With the expected growth, the frequency of these violations will increase by 23 percent.

Table S-1. Increased emissions resulting from projected growth versus no-growth.

YEAR	INCREASES RESULTING FROM EXPECTED GROWTH OVER NO-GROWTH	
	REACTIVE HYDROCARBONS (TONS/DAY)	NITROGEN OXIDES (TONS/DAY)
1990	40 (14%)	38 (17%)
2000[1]	51 (18%)	47 (21%)

[1]Assumes same average per capita emissions in 2000 as in 1990.

These increases in emissions and air quality violations are considered adverse impacts attributable to the projects. The City will develop special measures (mitigation) to counteract these impacts. The mitigation measures will be included in the Final EIS and will become conditions of the construction grants. Mitigation measures presently being implemented by the City will be credited towards fulfillment of these requirements.

LOCATION OF FACILITIES

The major issue here is whether or not a treatment facility should be located in the San Fernando Valley (Sepulveda Flood Control Basin) (see Figure S-1). The proposed Sepulveda facility would treat an initial flow of 40 mgd increasing to an ultimate capacity of 85 mgd. The East Valley Interceptor Sewer (EVIS) would also have to be built to provide adequate flow to operate the plant. If the capacity is not provided at Sepulveda, it would have to be added to the Hyperion facility. Adding the capacity to Hyperion would likely necessitate an additional sewer line, the Additional Valley Outfall Relief Sewer, or "AVORS tunnel," to the San Fernando Valley to transport the increased wastewater flow back to Hyperion.

The issues related to the Sepulveda site include: cost-effectiveness of the separate Sepulveda facility, the possible need for sludge disposal at the facility, its safety during floods and earthquakes, and the loss of 6.4 mgd of Los Angeles River water which is presently percolated into groundwater at the Headworks Spreading Ground. (State Health Department policy would prohibit spreading at the Headworks Spreading Ground of river water that was mixed with Sepulveda effluent.) As presently designed without carbon absorption, if Sepulveda effluent is allowed to percolate into the groundwater table, a lowering of local drinking water quality could result, although primary drinking water standards would likely still be met.

The issues related to a Hyperion location for the increased capacity include limited land availability, the cost of the AVORS line, problems associated with holding tanks, and usurpation of land area possibly needed for reclamation facilities.

Because provision of either treatment facilities or an outfall line to the San Fernando Valley would allow population density to increase in the Valley, potentially at the expense of the area south of the mountains, the secondary impacts, especially those on air quality, are examined.

RECLAMATION

The City will soon reclaim a small portion of its wastewater at the Los Angeles-Glendale facility. A major issue discussed in the main text and Addenda I and II is the potential for large-scale reclamation, both at the Hyperion facility and at a proposed La Cienega area facility. Of major importance in the facilities planning effort is the need to accommodate future reclamation opportunities by appropriate facility siting and by the adoption of treatment techniques which produce effluents amenable to reclamation.

The specific issues involved are as follows:

1. How does the secondary treatment process used affect the potential for reclamation? The existing 100-150 mgd "coarse bubble" aerated effluent is reasonably amenable to reclamation. "Fine bubble" air aeration is probably equivalent. "Oxygen" aerated effluent is least amenable for reclamation; however, it is also less costly and is therefore the City's preferred treatment option for the entire facility.
2. Should progress toward complete secondary treatment for the system be delayed to complete studies of the viability of the proposed La Cienaga Reclamation Plant?

OTHER ISSUES

A number of other issues are explored in the EIS. These include:

1. *Chlorination.* The need for disinfection of the effluent before discharge.
2. *Replacement of the existing secondary treatment.* In addition to the reclamation impact, this issue revolves about the impact on the marine environment of discontinuing secondary treatment for three to four years while "oxygen aerated" secondary facilities are constructed.
3. *Storm period overflows.* Approximately once per year, an overflow occurs from a sewer into the Ballona Creek flood control channel, and occasionally, other lesser overflows also occur. Prevention of these overflows is a legal requirement and a main goal of the Facilities Plan.
4. *Sludge disposal impacts on land.* Addendum III investigates transportation routes and landfill sites for the interim disposal of sludge other than in the ocean. The report concludes that several sites exist to which the hauling and depositing of dewatered sludge is environmentally acceptable.
5. *Water conservation.* A water conservation program could have the effect of decreasing sewage flows and thereby reducing the required future capacity of facilities. The citizens of Los Angeles through their conservation efforts during the current drought have reduced sewage flows by 18 percent. If this could be sustained, significant savings in facility costs would be realized.

CONCLUSION

The City of Los Angeles, Bureau of Engineering, and the Environmental Protection Agency thank you for the time spent in reviewing this document. We invite your further participation through attendance at the public hearing or through the submittal of written comments on these issues.